Product overview

The Gateway GR585 F1 is a four-socket 2U server for space-conscious users who demand the highest performance and utmost expansion capability. Delivering the latest technology, this server was designed for cost-effective growth and includes a comprehensive list of management features.
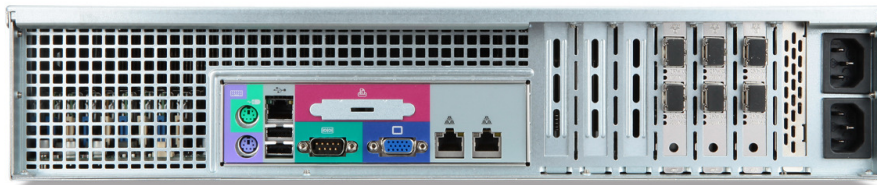
Internal view

1	2 x 1400 W 80 PLUS® gold-level efficient easy-swap power supplies (1+1 redundant, hot-pluggable)
2	4 x AMD Opteron™ 6100 series processors
3	32 x DDR3 ECC registered / unbuffered DIMMs
4	N+1 redundant cooling fans
5	4 x PCIe expansion slots
6	6 x 3.5" hot-swappable hard drive bays

Front View

Rear View

***Note:** Rear expansion may vary by model

Front I/O
1   2 x USB 2.0 ports
2   Serial port
2   Network, hard drive, power, and system status indicators

Rear I/O
1   PS2 mouse and keyboard ports
2   2 x USB ports
3   2 x Gigabit LAN port (RJ-45)
4   Video port
5   Serial port
6   System ID LED
7   Management port (RJ-45)

What's New
- New AMD Opteron™ 6100 series processors
    AMD Opteron 6176, 6140, 6166HE, and 6132HE
- Hot-pluggable/redundant power supply with 80 PLUS® gold-level efficiency
- Smart Server Manager v1.1 with improved management functionality

Product Specifications

Processors and Chipset
- Up to four AMD Opteron 6100 series processors
- Chipset: AMD SR5690 and SR5670/SP5100

Memory
- Memory capacity:
  - Registered DIMM: 2, 4, 8, 16 GB
  - Unbuffered DIMM: 2, 4 GB
- Up to 512 GB registered DIMMs when fully populated with 2 DIMMs per channel in 32 slots
- Up to 128 GB unbuffered DIMMs when fully populated with 2 DIMMs per channel in 32 slots

Network Controllers
- Integrated Intel® 82576EB Gigabit Ethernet Controller with dual ports

Storage
- Hard disk form factor: 3.5"
- Type: SAS/ SATA with hot-plug capability
- 3.5" Maximum capacity:
  - Up to 12 TB SATA (2 TB 3.5" x 6 HDDs)
  - Up to 3.6 TB SAS (600 GB 3.5" x 6 HDDs)

Storage Controllers
- Integrated AMD® SP5100 Chipset Serial ATA host controller with RAID 0, 1, 10 support
- Optional PCIe 4-/8-port SAS RAID card

Expansion slots
- Two low profile PCI-E 2.0 x16 slots
- One low profile PCI-E 2.0 x8 slot
- One Gateway Flex I/O x8 or PCI-E 2.0 x8 slot

Management
- Gateway Smart Server Manager
- System ID LED buttons, System Health LED
- Gateway Smart Console for server management and KVM over IP remote management

Deployment/Serviceability
- Gateway Smart Setup
- BIOS Update Tool
- IPMI Firmware Update Tool

Operating Systems
- Windows Server® 2008
- Windows Server® 2008 R2
- Windows Server® 2003
- Red Hat® Enterprise Linux 5
- SuSE® Linux Enterprise Server 11 SP1
- VMware ESXi™ 4 update 1
- VMware ESX™ 4 update 1

Input/output interface
Front
- 2 x USB 2.0 ports

- Serial port
- Network, hard drive and power, and system status indicators

Rear

- PS2 mouse and keyboard ports
- 2 x USB ports
- 2 x Gigabit LAN port (RJ-45)
- Video port
- Serial port
- System ID LED
- Management port (RJ-45)

Chassis/Form Factor

- 2U rack optimized

Power Supply

- 2 x 1400 W 80 PLUS® gold-level efficient, easy-swap power supply (1+1 redundant, hot-pluggable)

Regulatory Compliant Standards

EMC

- FCC (Class A)
- CE (Class A)
- BSMI (Class A)

Safety

- UL/cUL
- CB

Nemko/GS

Environmental Specifications

Dimensions	437 (W) x 709 (D) x 89 (H) mm (17.2 × 27.9 × 3.5 inches)	
Weight	Maximum	25.9 kg (57 lbs)
	Minimum (includes a single HDD, CPU and RAM, and PSU)	18.6 kg (41 lbs)
System inlet temperature	Operating	10° - 35°C (50° - 95°F)
	Non-operating	-40° - 70°C (-40° - 158°F)
Relative humidity	Operating	8 - 90 %
	Non-operating	5 - 95 %
Acoustics	Idle	
	LWAd	6.7 BA
	LpAm	54.1 dBA
	Operating	
	LWAd	7.7 BA
	LpAm	67.7 dBA

Power	Rated Steady –state power	1400 W
	Maximum Peak Power	1400 W
	BTU rating	4095 BTU/hr at 100 - 140V AC
		4778 BTU/hr at 180-240V AC

Technical specifications

PCIe® specifications

The primary I/O bus for the main board is PCIe Gen2. The following table lists the characteristics of the PCI-E bus segments. Details about each bus segment follow the table.

NOTE: The signaling bit rate of PCI Express is 2.5Gbit/s one direction per lane for Gen 1 and 5.0Gbit/s one direction per lane for Gen 2.

Expansion slot	Number	Type	Bus width[1]	Voltage	Connector	Location	Length
PCIe x16	2	PCIe Gen2	x16	3.3V	x16	Onboard	Low-profile
PCIe x8[1]	Up to 2	PCIe Gen2	x8	3.3V	x8	Onboard	Low-profile
Flex I/O[1]	1	PCIe Gen2	x8	3.3V	x8	Onboard	Low-profile

NOTE:

1. If the Flex I/O slot is used, the second PCIe x8 cannot be used.

2. Indicates the number of physical electrical lanes running to a PCIe® connector.

2. Default bus assignment (in decimal). Inserting cards with PCI™ bridges may alter the actual bus assignment number.

3. Slots are enumerated differently based on the operating system. Microsoft® operating systems enumerate Device ID by bus starting from the lowest bus to the highest.

Onboard storage specifications

Item	Description
Controller	AMD® SP5100 SATA controller
Simultaneous drive transfer channels	6 onboard SATA ports
Max throughput per channel	3 Gb/s
Data transfer method	• Non-RAID mode • RAID mode (Adaptec RAID driver)
Drive type supported	Serial ATA
RAID levels support	• RAID 0, 1, 10 (Adaptec software RAID)
RAID function support	• Supports multiple logical volumes • Setup through ROM based Array Configuration Utility Installation scripting support
RAID OS support	**NOTE:** This controller does not support LED functions • Windows Server 2008 • Windows Server 2008 R2 • Windows Server 2003 • Red Hat Enterprise Linux 5.4

Additional features	• SuSE Linux Enterprise Server 11
	• NCQ (Native Command Queuing)
	• AHCI (Advanced Host Controller Interface)

Onboard LAN specifications

Item	Description
Controller	1 x Intel® 82576EB Gigabit Ethernet Controller (2 ports total)
Network interface	10Base-T / 100Base-TX / 1000Base-T
Compatibility standards	• IEEE 802.3 Ethernet interface for 10BASE-T
	• IEEE 802.3ab Ethernet interface for 1000BASE-T,
	• IEEE 802.3u Ethernet interface for 100BASE-TX
Manageability	• NC-SI, SMBus
	• PXE, iSCSI boot
Virtualization acceleration	• Intel® I/O Acceleration Technology
	• Virtual Machine Device Queues (VMDq)
	• PCI-SIG SR-IOV implementation
Connector	RJ-45
Supported cable type	CAT 5e wire

Memory specifications and population

Item	Description
Supported memory types	• Registered DDR3 1066 / 1333 MHz
	• Unbuffered DDR3 1066 / 1333 MHz
	NOTE: Gateway does not qualify mixed memory configurations of memory type, capacity or make.
Population	Gateway's validated memory populations are listed below.
	NOTE: Support for 8 / 16 GB DIMMs may vary by regional availability.

Dual processor configuration guide

DIMM#	CPU 1								CPU 2							
	4B	4A	3B	3A	2B	2A	1B	1A	4B	4A	3B	3A	2B	2A	1B	1A
4				x				x				x				x
8		x		x		x		x		x		x		x		x
16	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Quad processor configuration guide

#	CPU1								CPU2								CPU3								CPU4							
	4B	4A	3B	3A	2B	2A	1B	1A	4B	4A	3B	3A	2B	2A	1B	1A	4B	4A	3B	3A	2B	2A	1B	1A	4B	4A	3B	3A	2B	2A	1B	1A
8		x		x						x		x						x		x						x		x				
16	x	x		x		x		x	x	x		x		x		x	x	x		x		x		x	x	x		x		x		x
32	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

On-Line Spare

On-line spare is a RAS mechanism that allows the system to reserve one rank of one logical DIMM to be used as a spare rank. The spare rank must be greater than or equal to the size of all other ranks in the system. The system can switch to the spare rank when system software determines that one of the ranks in the system is no longer functioning properly and needs to be replaced.

Memory Identification

Generally, there are some memory information printed on the label of DIMM, but different vendor may have different format. For example:

> 4GB 2Rx4 PC3-10600R xx xx xxx

1. Density

- 1GB, 2GB, 4GB, 8GB, 16GB

2. Rank

- 1R = Single Rank
- 2R = Dual Rank
- 4R = Quad Rank
- Note: if any quad rank DIMM is used, maximum only 2 DIMM per channel can be supported

3. Bit Organization

- This platform supports x4 and x8
- Note: It's not recommend to mix DIMM with different bit organization in one system

4. Speed

- PC3 – 6400 => DDR3- 800
- PC3 – 8500 => DDR3- 1066
- PC3 – 10600 => DDR3- 1333

Power specifications

1400W Power Supply

Operational Input Voltage Range (Vrms)	1200W: 100-140 VAC 1400W: 180 – 240 VAC						
Frequency Range (Nominal) (Hz)	60/50						
Nominal Input Voltage (Vrms)	**100**	**120**	**208**	**200**	**220**	**230**	**240**
Max. Rated Output Wattage	1237.3	1237.4	1403.4	1403.4	1403.2	1403.0	1403.7
Nominal Input Current (A rms)	14.21	11.95	7.92	7.62	7.13	6.83	6.55
Max. Rated Input Wattage Rating (Watts)	1416.74	1428.26	1577.66	1578.62	1560.76	1559.90	1561.00
Max. Rated VA (Volt-Amp)	1421.0	1434.0	1584.0	1585.0	1568.6	1570.9	1572.0
Efficiency (%) at Max. Rated Output Wattage	87.33%	86.64%	88.95%	88.90%	89.91%	89.94%	89.92%
Power Factor	0.997	0.996	0.996	0.996	0.995	0.993	0.993
Leakage Current (mA)	1.1	1.2	1.1	1.1	1.2	1.2	1.2
Max. Inrush Current (A peak)	16.74	15.98	16.05	16.11	15.70	15.89	16.20
Max. Inrush Current Duration (mS)	4.61	4.60	4.63	4.63	4.65	4.72	4.75
Max. British Thermal Unit Rating (BTU/hr)	4222.90	4223.24	4789.80	4789.80	4789.12	4788.439	4790.82

Gateway server software utilities

Smart Setup 2.0	Easy deployment via the latest version of Gateway's Smart Setup. Smart Setup is available both in box as a driver packed installation DVD or a downloadable file to be put into a USB 2.0 device, and eases the deployment of Gateway servers for any certified OS. Through its unique interface, users may select to have all the correct drivers be pre-deployed for the OS of their choosing, as well as setup hardware RAID devices, BMC settings (where available), and even clone the pre-settings to a bootable USB device to ease mass server deployments.
Smart Console	Web-based management utility to simplify system management with embedded iBMC, system monitoring and alerting, event handling, remote power control and KVM-over-IP. Smart Console is OS independent and offers virtual media through floppy, ODD, and removable disk.
Smart Server Manager v1.1	Offering 24-7 monitoring for system health and performance.

Smart Server Manager v1.1 list:
- Delivers proactive event management features including system event logging, event handling from e-mail and SNMP Trap (PET) alerting.
- Monitors onboard hardware, operating systems and virtual machines
- Allows remote control from KVM and Power control
- Satisfies management in web-based UI, role-based administration, and automated management scripts.

GR585 F1 specifications

Available options

Processors (up to 4)

AMD Opteron™ 6100 series processor (12-core)

6176 (12 MB L3 cache, 2.3 GHz, DDR3-1333 MHz, 115W (ACP 80W))

6174 (12 MB L3 cache, 2.2 GHz, DDR3-1333 MHz, 115W (ACP 80W))

6172 (12 MB L3 cache, 2.1 GHz, DDR3-1333 MHz, 115W (ACP 80W))

6168 (12 MB L3 cache, 1.9 GHz, DDR3-1333 MHz, 115W (ACP 80W))

6166HE (12 MB L3 cache, 1.8 GHz, DDR3-1333 MHz, 75W (ACP 65W))

6164HE (12 MB L3 cache, 1.7 GHz, DDR3-1333 MHz, 75W (ACP 65W))

AMD Opteron™ (8-core)

6140 (12 MB L3 cache, 2.6 GHz, DDR3-1333 MHz, 115W (ACP 80W))

6136 (12 MB L3 cache, 2.4 GHz, DDR3-1333 MHz, 115W (ACP 80W))

6134 (12 MB L3 cache, 2.3 GHz, DDR3-1333 MHz, 115W (ACP 80W))

6128 (12 MB L3 cache, 2.0 GHz, DDR3-1333 MHz, 115W (ACP 80W))

6132HE (12 MB L3 cache, 2.2 GHz, DDR3-1333 MHz, 75W (ACP 65W))

6128HE (12 MB L3 cache, 2.0 GHz, DDR3-1333 MHz, 75W (ACP 65W))

6124HE (12 MB L3 cache, 1.8 GHz, DDR3-1333 MHz, 75W (ACP 65W))

Memory

Memory type	Registered / Unbuffered DDR3 ECC memory
Capacities	1 / 2 / 4 / 8 / 16 GB DIMMs
DIMM number	32
Max memory	512 GB (128 GB unbuffered)

Hard drives

Type	Interface, bandwidth	Capacities (RPM)
Enterprise SATA, 3.5”	3 Gb/s	250 GB (7.2K)
		500 GB (7.2K)
		750 GB (7.2K)
		1 TB (7.2K)
		2 TB (7.2K)
Enterprise SAS, 3.5”	6 Gb/s	146 GB (15K)
NOTE: SAS drives require an add-on RAID card		300 GB (15K)
		450 GB (15K)

600 GB (15K)

RAID cards

Model	Port number	RAID support
Flex I/O, LSI® SAS 2108*	8 internal ports	0, 1, 5, 6, 10, 50, 60

*Battery Backup Unit BBU07 available

RAID HBA for Tape Drive

Note: LTO tape drives require an add on card for external or internal connectivity

Model	Port number	RAID support
LSI® SAS3442E-R	4 internal / 4 external ports	0, 1, 10

Ethernet network cards

Model	Port number	Bandwidth
Intel® Gigabit CT2 desktop adapter	1	10/100/1000 Mbps
Supermicro AOC-SG-i2 server adapter	4	10/100/1000 Mbps
Supermicro AOC-SG-i4 server adapter	4	10/100/1000 Mbps
Supermicro AOC-STGN-i2S server adapter (DA2)*	2	10 Gbps
Intel® X520-SR1 server adapter*	1	10 Gbps
Intel® X520-SR2 server adapter*	2	10 Gbps
Intel® X520-LR1 server adapter*	1	10 Gbps

***Note**: Intel's 10GbE cards vary in terms or their connecter type. The X520-DA2 is a copper connector for lengths up to 7M, while the X520-SR1/2 is an optical connection for cables up to 550M. The X520-LR1 is for even longer cable lengths up to 10kM.

Fibre Channel HBAs

Model	Port number	Bandwidth
Qlogic® QLE2460	1	4 Gb/s
Qlogic® QLE2462	2	4 Gb/s
Qlogic® QLE2560	1	8 Gb/s
Qlogic® QLE2562	2	8 Gb/s

Tape Backup Unit (TBU)

Model	Tape capacity	Form factor
LTO Ultrium-3, 3Gb/s SAS	400/800 GB	External 1U rack
LTO-4, 3Gb/s SAS	400/800 GB	External 1U rack

TPM module

TPM module with STMicro chip

Service and support

Gateway Servers offer a comprehensive service suite to take care of daily IT needs. Users can select the 3-year standard warranty or choose extended warranties and services.

In a continuing effort to improve the quality of our products, information in this document is subject to change without notice. Images shown are only representations of some of the configurations available for this model. Availability may vary depending on region.

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NOTE: Extension warranty services may vary by country. Please contact Gateway authorized resellers for more information.